Positive (+) stabilizing pulses applied to the data electrodes the time that a sustain discharge occurs in the deselected row electrodes prevent the fluorescent bodies from being destroyed due to a sputtering caused by ions.

When a stabilizing pulse is applied, the selected scan electrodes receive no scan pulses. Each pulse width in the waveform diagrams of FIGS. 18–19 can be regulated.

FIG. 20 illustrates a scanning achieved by means of the driving waveforms in FIGS. 18–19.

Referring to FIG. 20, the number of row electrodes in a PDP is m. A field is divided into 8 parts in the direction of column electrodes; four upper blocks are designated as scanning block 1 (1 to m/2) with four lower blocks designated as scanning block 2 (m/2+1 to m).

The total 1 frame time is divided into 45 equivalent parts each of which is termed basic block, and the portion indicating m/8 row electrodes to be scanned in the basic block, that is, the hatched part of FIG. 13 is referred to as addressing block.

Since the number of scan pulses in an address cycle is determined as 2 in the driving waveforms of FIGS. 18–19, the number of scan pulses in an address cycle according to the scanning method in FIG. 20 is also designated as 2.

When there are at most two addressing blocks in a basic block, each of the addressing blocks lies in scanning blocks 1 and 2. With only one addressing block, it may be in either of the scanning blocks 1 and 2. As for basic block 2, there are totally two addressing blocks each of which lies in the second blocks of the scanning blocks 1 and 2.

In the scanning method, one row electrode is selected alternately from the addressing block 1 in the scanning block 1 and the addressing block 2 in the scanning block 2, as shown in FIG. 21.

In scanning basic block 11 in which one addressing block lies in the first block of the scanning block 2, the scanning block 1 has no addressing block so that a scanning pulse may be applied during a time for addressing block 2 instead of addressing block 1, as shown in FIG. 22.

Finally, in scanning basic block 42 where no addressing block is either of scanning blocks 1 and 2, as shown in FIG. 23, there is no scan pulse applied.

The sub-field arrangement in each row electrode block uses the distributed arrangement of scan concentrated periods. In FIG. 20, as the number of scan pulses in an address cycle of the scan concentrated period is not 2 but 1, the scan concentrated periods consisting of lower bits can be overlapped among them as long as the number of scan pulses in an address cycle of the total timing diagram is 2.

The scan concentrated period in row electrode block 1 comprising the first and second blocks of scanning block 1 is located in the middle of 1 frame, that in row electrode block 2 comprising the third and fourth blocks of scanning block 1 is at the end of 1 frame, and that in row electrode block 3 comprising the first and second blocks of scanning block 2 is at the starting point of 1 frame.

The scan concentrated period in row electrode block 4 comprising the third and fourth blocks of scanning block 2 lies in the middle of 1 frame, so that the starting point of the scan concentrated period in row electrode block 2 is overlapped with the end of the scan concentrated period in row electrode block 4.

The end part of the scan concentrated period in row electrode block 3 is overlapped with the starting part of the scan concentrated period in row electrode block 1, the fore part of the scan concentrated period in row electrode block 4 being overlapped with the rear part of the scan concentrated period in row electrode block 1. The rest of sub-fields which are not in the scan concentrated periods are arranged to have the number of scan pulses in an address cycle less than 2.

Row electrode block 1 has sub-fields 6 and 7 sequentially arranged on the left side hand of the scan concentrated period, and sub-field 8 on the right side hand.

Row electrode block 2 has sequential sub-fields 7 and 8 on the left side hand of the scan concentrated period, and sub-field 6 on the right side hand.

Row electrode block 3 has sub-field 6 on the left side hand of the scan concentrated period, and sub-fields 8 and 7 sequentially arranged on the right side hand.

Finally, row electrode block 4 has sub-field 8 on the left side hand of the scan concentrated period, and sub-fields 7 and 6 sequentially on the right side hand.

This method secures the time required for scanning one frame so that utmost 1700 row electrodes can be driven.

As described above, the present invention provides an effective method of driving a high resolution AC PDP by using a distributed arrangement of scan concentrated periods and an addressing sustain concurrent driving method to secure the scanning time to the maximum by applying scanning and sustain pulses to different row electrodes at the same time.

Compared with prior art sub-field driving method, the present driving method for a high resolution AC PDP makes it possible to drive 1700 row electrodes in the maximum by securing the time required for scanning one frame.

It will be apparent to those skilled in the art that various modifications and variations can be made in the method of driving PDP of the present invention without departing from the spirit or scope of the invention. Thus, it is intended that the present invention cover the modifications and variations of this invention provided they come within the scope of the appended claims and their equivalents.

What is claimed is:

1. A method for driving a plasma display panel, comprising:

dividing row electrodes into a first area to be scanned and a second area to be sustained in a given time period;

simultaneously applying scan pulses and sustain pulses, wherein the scan pulses are applied successively to row electrodes of the first area row by row, and wherein the sustain pulses are applied to row electrodes of the second area; and

applying address pulses to data electrode in synchronization with a scan pulse.

2. The method as claimed in claim 1, wherein the scan pulse is applied to the row electrodes to be scanned regardless of when the sustain pulse is applied.

3. The method as claimed in claim 1, wherein the scan pulse and the data pulse are not applied to the row electrodes and data electrodes respectively when the sustain pulse has a rising edge.

4. The method as claimed in claim 1, further comprising the step of:

applying a stabilizing pulse to the data electrodes when the sustain pulse has a rising edge.

5. The method as defined in claim 1, wherein a address pulses are data to construct the sub-field of 640 scan lines bit by bit corresponding to a predetermined luminance, out of digital image data of eight bits.

6. The method as defined in claim 5, wherein subfields formed with a combination of digital image data of bits different from those of a previous subfield are sequentially scanned seven times.

7. The method as defined in claim 1, wherein the first area is divided into at least two sub-blocks, and the scan pulses are alternately applied to the at least two sub-blocks.

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